Space Weather Forecast

Issued on Tuesday, 09 April 2024 at 01:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Increasing chance of Moderate-class flares during this period.

Analysis of Space Weather Activity over past 24 hours.

Solar Activity: Solar activity has been Low, with just a couple of minor Common-class flares in the last 24 hours. There are now five sunspot regions on the visible disc. A region near north centre disc is the largest, with a faint leader spot. A further region in the southeast remains a fairly simple bipolar spot, but has shown signs of growing some intermediate spots of late. All other spots remain simple, with limited development.
There have been no Earth-directed Coronal Mass Ejections (CMEs) observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind has shown evidence of two events in the last 24 hours. A transient weak CME appears to have arrived at Earth at 08/0125UTC and then a further enhancement took place around 08/0900 UTC. This was originally thought to be the onset of a coronal hole fast wind, but with no wind speed increase this is now considered unlikely. Wind speeds reached around 400km/s due to the arrival of the CME, but declined thereafter, and are now near 370 km/s. Total magnetic field strength was mostly weak, but briefly peaked near moderate after the CME arrival. The north-south component was weakly variable. Geomagnetic activity was Quiet to Unsettled (Kp 0-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Very Low activity is expected at first with a slight chance of Moderate-class flares. This potentially increasing at the end of the period as a large active region from the previous rotation starts to return.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Solar wind speeds are now at background levels after some slight enhancement in the last 24 hours, likely due to a weak transient CME and also perhaps a brief weak interaction with a coronal hole fast wind. Wind speeds are expected to be at background levels, or perhaps slightly elevated should there be any weak fast wind influence.
Mainly Quiet to Unsettled geomagnetic activity is expected, perhaps with an isolated Active interval.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	20	30	40
Very Active	R3 to R5 X	No	1	1	1	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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